

REMARKS

Claims 1-15 are currently pending in the application. By this amendment claims 6-10 were amended. No new matter is added. For example, Claim 6 was amended into independent and allowable form. Claims 7-10 were amended to correct their dependency. This amendment also does not raise any new issues that need further search and/or consideration, nor any question of new matter.

Allowable Subject Matter

Applicants appreciate the indication that claim 6 recites allowable subject matter, and have rewritten claim 6 into independent form including all of the limitations of the base claim 1 and any intervening claims 2, 3 and 5. Accordingly, Applicants submit that claim 6 is allowable for at least the reason that the Examiner has indicated the claim contains allowable subject matter.

35 U.S.C. § 103 Rejection

Claims 1 and 11-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent Number 6,434,590 issued to Blelloch (BLELLOCH) in view of U.S. Patent Number 5,440,740 issued to Chen et al. ("CHEN").

The Examiner asserts that BLELLOCH shows all of the features except a status manager in each task unit for handling actions from source task units and building actions to be sent to the destination task units. However, the Examiner asserts that such features are shown in CHEN, and that it would have been obvious to modify BLELLOCH to include the features of CHEN. Applicants traverse the Examiner's assertions.

Applicants' claim 1 recites, *inter alia*,

“...a plurality of task units for processing data, making and/or processing data and making decisions;

...each of said task units including a processor for executing the steps of the associated task in response to a received request action and a status manager for handling actions from source task units and building actions to be sent to destination task units.”

The Applicants' claim 12 recites, *inter alia*,

“...at least two task units each configured to process the steps of a respective single task of a multiple task algorithm;

...at least two processors configured to execute the respective single task in each of the respective at least two task units.”

Applicants submit that no proper combination of BLELLOCH and CHEN render obvious the above-noted features of claims 1 and 11-15.

As acknowledged by the Examiner, BLELLOCH does not show all of the features of the claimed invention. In particular, as BLELLOCH discloses one assignment manager that supplies and makes available a set of tasks to a *plurality of processing units*, this document fails to disclose or suggest that each task unit includes a status manager, as recited in independent claims 1 and 12. Moreover, while the assignment manager of BLELLOCH supplies and makes available a set of tasks to a *plurality of processing units*, such that the assignment manager assigns available resources to tasks queued in a waiting list, there is no teaching or suggestion that *each task unit includes a processor*, as recited in Applicants' claims 1 and 12, and in fact, there is no apparent teaching or suggestion of the recited task unit.

Furthermore, BLELLOCH discloses a task scheduler where the tasks don't have strong links between them, such that no data from one task can be used as an input for another task. In particular, BLELLOCH only discloses an assignment manager which is

used to assign available resources to task in a waiting list, such that the assignment manager acts as a scheduler for parallel multitasking. This function is well known in the computer art, and one skilled in the art would have already known of this technology.

Moreover, as BLELLOCH discloses a task that may generate another task, such that this task generation is not a predefined action, but the consequence of the processed task, there is no teaching or suggestion of *a task interconnection logic means interconnecting the task units for communicating actions from a source task unit to a destination task unit, and each of said task units including a processor for executing the steps of the associated task in response to a received request action and a status manager for handling actions from source task units and building actions to be sent to destination task units*, as at least recited in the above-noted independent claims.

CHEN discloses a data communication module (155) (Fig. 6a, 6b and 6c) employed to provide continuous, real-time, and uni-directional transfer of data from task (151) to task (153), both of which are resident in a digital signal processor. CHEN discloses a first digital processor configured with tasks (151) and (161) resident therein, and a second digital processor configured with task (153) resident therein, so as to perform multimedia tasks. (Fig. 6c) However, CHEN fails to teach or suggest the subject matter noted above as deficient in BLELLOCH.

In contrast to Applicants' invention, CHEN discloses (see Fig. 6c) a first digital processor (DSP 1) configured with multiple tasks resident therein, and a second digital processor (DSP 2) configured with a single task resident therein, such that CHEN fails to teach or suggest *a plurality of task units, in which each task unit includes a processor*.

In fact, Applicants submit CHEN teaches away from the instant invention, i.e.,

CHEN discloses the interconnection of tasks as static and sequential, as shown in Figures 6a, 6b and 6c over data communication modules 155 or 163, which results in no decision taken into these modules to associate tasks in a different manner. Moreover, while CHEN discloses tasks that are ordered with unidirectional communication, there is no teaching or suggestion of *a plurality of task units for processing data, making decisions and/or processing data and making decisions, a task interconnection logic means interconnecting the task units for communicating actions from a source task unit to a destination task unit; and each of said task units including a processor for executing the steps of the associated task in response to a received request action and a status manager for handling actions from source task units and building actions to be sent to destination task units*, as recited in at least the independent claims in terms of claim 1.

As neither applied document teaches or suggests the above-noted features of at least independent claims 1 and 12, Applicants submit that no proper combination of these documents can render unpatentable the combination of features recited in the pending claims.

Further, Applicants respectfully disagree with the Examiner's assertions that it would have been obvious to modify the teachings of BLELLOCH with those of CHEN.

A § 103 rejection requires the Examiner to first establish a prima facie case of obviousness: "The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the Examiner does not produce a prima facie case, the Applicants are under no obligation to submit evidence of nonobviousness." MPEP 2142. The Court of Appeals for the Federal Circuit has set forth three elements which must be shown for prima facie obviousness:

“First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teachings or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on Applicant’s disclosure. In re Vaeck, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).”

CHEN discloses a data communication module (155) employed to provide continuous, real-time, and uni-directional transfer of data from task (151) and task (161). Data communication module (163) is provided for passing data from task (161) to task (153). An additional intertask control block (165) is provided for passing status and control information between tasks (151) and (161), while intertask control blocks (157) and (159) pass status and control variables between task (151) and (153).

However, the assignment manager of BLELLOCH operates differently than the data communication modules of CHEN. BLELLOCH’s assignment manager (AM1) determines tasks available for scheduling and assigns a subset of these tasks to a system (SY1) containing processing element (PE1) and router (RT1) shown in Fig. 2. (Col. 2, lines 43-51).

As the devices in the cited documents operate in different manners, Applicants submit that it would not have been obvious to replace the assignment manager of BLELLOCH with the data communication module of CHEN, nor is there any suggestion in the art of record that such a modification, even if obvious (which Applicants submit it is not) would allow BLELLOCH to operate in its intended manner.

Thus, Applicants submit that the art record fails to disclose the requisite motivation

or rationale for combining BLELLOCH and CHEN in the manner asserted by the Examiner.

For these reasons, Applicants respectfully submit that claims 1 and 12 are allowable over any proper combination of BLELLOCH and CHEN. Claim 11 is also allowable over BLELLOCH and CHEN because of its dependency from allowable base claim 1. Claims 13-15 are also allowable over BLELLOCH and CHEN because of their dependency from allowable base claim 12. Withdrawal of the rejection of claims 1 and 11-15 are respectfully requested.

BLELLOCH in view of CHEN, and further in view Official Notice

Claims 2 and 3 are rejected under 35 U.S.C. § 103(a) as being unpatentable over BLELLOCH in view of CHEN as applied to claim 1 above, and in further view of "Official Notice".

Documentation is typically required to support Official Notice: "ordinarily, there must be some form of evidence in the record to support an assertion of common knowledge, *In re Lee*, 277 F.3d 133, 1344-45, 61 USPQ2d 1430, 1434-35 (Fed. Cir. 2002)." MPEP 21.03(B). Moreover, if undocumented, Official Notice must include specific factual support: "The Examiner must provide specific factual findings predicated on sound technical and scientific reasoning to support his or her conclusion of common knowledge. *In re Soli*, 317 F.2d 941, 946, 137 USPQ 797, 801 (CCPA 1943)." *Id.* Official Notice may be traversed by pointing out errors in the Examiner's action, including why the fact is not common knowledge. 37 C.F.R. 1.111(b); MPEP 2144.03(C). If Official Notice is adequately traversed by the Applicants, the examiner must provide appropriate documentation or

withdraw the Official Notice. 37 C.F.R. 1.104(c)(2); MPEP at id.

Regarding claims 2 and 3 the Examiner notes that BLELLOCH and CHEN do not specifically teach the limitations presented in the above claims. The Examiner takes undocumented Official Notice that it would have been obvious to implement the systems or system of BLELLOCH and CHEN to the limitations of Applicants' claims 2 and 3. Applicants traverse the undocumented Official Notice, and note that no factual basis has been provided to support the assertion that the features of claims 2 and 3 are common knowledge, nor is there any suggestion for utilizing such features in combination with any proper combination of BLELLOCH and CHEN.

Accordingly, Applicants respectively traverse the Examiner's assertion that it would have been obvious to modify BLELLOCH and CHEN so as to render unpatentable claims 2 and 3.

Pursuant to MPEP 2144.03, Applicants request the Examiner (i) withdraw the rejection or (ii) supply evidence, e.g. a prior art reference supporting the asserted "well known" feature (s). If the rejection is not withdrawn, Applicants request the Examiner to provide a factual basis for asserting that this subject matter of claims 2 and 3 is well known.

Further, regarding claims 2 and 3, Applicants submit that these claims depend from claim 1, and are allowable over BLELLOCH and CHEN for the reasons set forth with respect to claim 1, as well as for their added features. Accordingly, Applicants request that the rejection of claims 2 and 3 be withdrawn.

BLELLOCH in view of CHEN, in further view of PAPADOPOULOS

Claim 4 is rejected under 35 U.S.C. § 103(a) as being unpatentable over BLELLOCH in view of CHEN, in further view of U.S. Patent Number 5,430,850 issued to Papadopoulos ("PAPADOPOULOS").

The Examiner asserts that BLELLOCH in view of CHEN, in further view of PAPADOPOULOS shows all of the features of the claimed invention. Applicants traverse the Examiner's assertions.

Applicants submit that, like BLELLOCH and CHEN, PAPADOPOULOS fails to teach or suggest a plurality of task units, in which each task unit includes a processor as recited in independent claims 1 and 12.

PAPADOPOULOS teaches routing the *entire* code or algorithm to *every* processing unit. Thus, in contrast to the instant invention, PAPADOPOULOS permits each processor to run any task when the necessary data arrives at the processor, such that there is no teaching or suggestion of each task unit including a processor.

Because none of the applied documents teach or suggest at least the above-noted features of the invention, Applicants submit that no proper combination of these documents can render unpatentable the instant invention, as recited in at least independent claims 1 and 12.

The Examiner asserts that PAPADOPOULOS teaches a status manager as a state machine, Col. 26, lines 54-60 disclose the Rmem processor receiving messages destined for a current node, and either sends a message back to the requesting processor or elicits a trap on the current processor for handling conditions beyond it capability.

However, the Examiner has not provided any teaching or suggestion how this

relates to BLELLOCH and/or CHEN, such that the art of record fails to show the necessary motivation for properly combining the applied art under 35 U.S.C. § 103(a).

Therefore, Applicants respectfully request the rejection to claim 4 be withdrawn. Further, Applicants submit that this claim depends from claim 1, and is allowable over BLELLOCH, CHEN and Papadopoulos for the reasons set forth with respect to claim 1, as well as for their added features. Accordingly, Applicants request that the rejection of claim 4 be withdrawn.

BLELLOCH in view of CHEN, and further in view Papadopoulos, and in further view of Official Notice

Claims 5 and 7-9 are rejected under 35 U.S.C. § 103(a) as being unpatentable over BLELLOCH in view of CHEN as applied to claim 3 above, and in further view of Papadopoulos et al. (U.S. 5,430,850) ("PAPADOPOULOS"), and in still further view of "Official Notice".

First and foremost, Applicants reassert the above § 103 rejection requirements of the Examiner to first establish a prima facie case of obviousness: "The Examiner bears the initial burden of factually supporting any prima facie conclusion of obviousness. If the Examiner does not produce a prima facie case, the Applicants are under no obligation to submit evidence of nonobviousness." MPEP 2142.

Accordingly, the Examiner notes that BLELLOCH and CHEN do not specifically teach the limitations presented in claims 5 and 7-9. The Examiner asserts it would have been obvious to combine PAPADOPOULOS's plurality of control/data register in the task units with that of the BLELLOCH's device for address registration abilities. Applicants

respectfully disagree with the Examiner assertions, since the applied documents do not provide any motivation or suggestion for utilizing such features in combination with any proper combination of BLELLOCH, CHEN and PAPADOPOULOS.

Regarding claims 5 and 7-9, the Examiner notes that BLELLOCH, CHEN and PAPADOPOULOS do not specifically teach the limitations presented in the above claims. The Examiner takes Official Notice that it would have been obvious to implement the systems or system of BLELLOCH, CHEN and PAPADOPOULOS to the limitations of Applicants' claims 5 and 7-9, and has identified U.S. Patent No. 6,412,070 to Van DYKE as evidence in support of the Official Notice. Applicants traverse the rejection as the art of record fail to teach or suggest any proper combination of BLELLOCH, CHEN and PAPADOPOULOS.

Moreover, Applicants submit that Van DYKE fails to teach or suggest the subject matter noted as deficient in the other applied documents, such that no proper combination of these documents can render unpatentable the instant invention.

Accordingly, Applicants respectively traverse the Examiner's assertion that it would have been obvious to modify BLELLOCH, CHEN and PAPADOPOULOS (with Van DYKE) so as to render unpatentable claims 5 and 7-9.

Further, regarding claims 5 and 7-9, Applicants submit that these claims depend from claim 1, and are allowable over BLELLOCH, CHEN and PAPADOPOULOS (and Van DYKE) for the reasons set forth with respect to claim 1, as well as for their added features. Accordingly, Applicants request that the rejection of claims 5 and 7-9 be withdrawn.

BLELLOCH in view of CHEN, in further view of PAPADOPOULOS, and in further view of FAIRFIELD

Claim 10 is rejected under 35 U.S.C. § 103(a) as being unpatentable over BLELLOCH in view of CHEN, in further view of PAPADOPOULOS, in further view of U.S. Patent Number 5,321,842 issued to Fairfield et al. ("FAIRFIELD").

The Examiner asserts that BLELLOCH in view of CHEN, in further view of PAPADOPOULOS, and in further view of FAIRFIELD shows all of the features of the claimed invention. The Examiner asserts that it would have been obvious to employ a three state driver as taught by FAIRFIELD, so as to provide feedback to the processor in PAPADOPOULOS AND BLELLOCH'S devices. Applicants traverse the Examiner's assertions.

Applicants submit that, like BLELLOCH, CHEN, PAPADOPOULOS and FAIRFIELD fails to teach or suggest a plurality of task units, in which each task unit includes a processor as recited in independent claims 1 and 12.

FAIRFIELD teaches using a three state driver connected to a single bus to prevent interference between processors accessing a single memory through a shared bus. Thus, in contrast to the instant invention, wherein each driver is associated with an input task and a number of buses equal to the number of tasks. Further, FAIRFIELD does not disclose the status manager that is associated with each task unit.

Because none of the applied documents teach or suggest at least the above-noted features of the invention, Applicants submit that no proper combination of these documents can render unpatentable the instant invention, as recited in at least independent claims 1 and 12.

The Examiner asserts that FAIRFIELD teaches a processor using three-state drivers (Col.2, lines 4-16).

However, the Examiner has not provided any teaching or suggestion how this relates to BLELLOCH and/or CHEN and/or PAPADOPOULOS, such that the art of record fails to show the necessary motivation for properly combining the applied art under 35 U.S.C. § 103(a).

Therefore, Applicants respectfully request the rejection to claim 10 be withdrawn. Further, Applicants submit that this claim depends from claim 1, and is allowable over BLELLOCH, CHEN, PAPADOPOULOS and FAIRFIELD for the reasons set forth with respect to claim 1, as well as for their added features. Accordingly, Applicants request that the rejection of claim 10 be withdrawn.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious Applicants' invention, as recited in each of claims 1-15. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

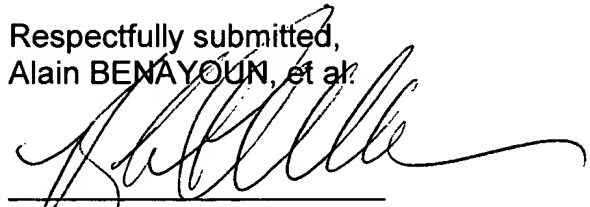
Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the

present application and all the claims therein are respectfully requested and now believed to be appropriate.

Should the Examiner have any questions or comments, he is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,
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